

Notice of Allowability

Application No.

10/730,308

Examiner

Eric B. Compton

Applicant(s)

GREENE ET AL

Art Unit

3726

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to an application files 08 December 2002.
2. ☒ The allowed claim(s) is/are 1 and 2.
3. ☒ The drawings filed on 08 December 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 12/8/03
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

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DETAILED ACTION

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

The title of the invention has been changed to --A method of making a lead-free bearing--.

The first sentence of the abstract has been changes as follows:

A method of making a [A] lead-free bearing that includes a bronze matrix powder metal bearing layer bonded to a steel backing a fully densified.

On page 1, line 4 of the specification, --, now U.S. Pat. 6,746,154—has been entered after "October 7, 2002."

Remarks

2. The title and abstract were changed to better reflect the claimed invention. See claim 1 ("A method of making a lead-free bearing comprising: ...").
3. The priority statement was updated to reflect the issuance of the priority application.

Allowable Subject Matter

4. Claims 1-2 are allowed.
5. The following is an examiner's statement of reasons for allowance: the prior art does not teach or suggest a powdered bearing alloy "consisting essentially of 8 to 12% by weight of tin, 1 to less than 5% by weight of bismuth, .03 to .08% by weight of phosphorus, and the balance consisting essentially of copper," in combination with the other claimed subject matter.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Prior Art References

The prior art references listed on the enclosed PTO-892, but not used in a rejection of the claims, are cited for their teachings of bearing alloys.

U.S. Pat. 4,551,395 to Lloyd discloses a similar alloy composition, but includes 12 to 18 % bismuth. See Abstract.

U.S. Pat. 4,579,712 to Mori discloses an alloy composition having 0.03 to 1 % P, 7.5 to 16 % Sn, 1 to 8 % graphite, and balance Cu. See Abstract. There is no disclosure of including Bismuth (Bi). See *also* US 2003/0049151A1 to Wehler (disclosing similar composition, but without bismuth).

U.S. Pat. 4,608,065 to Eudier et al discloses a similar alloy composition, but includes 5 to 10 % Sb, with Sn/Sb = 1.3 to 3.5, which Applicant does not require. See Abstract.

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U.S. Pat. 5,413,756 to Sahu discloses a bearing alloy composition having the same composition claimed by Applicant. See abstract. The reference only discloses continuous casting the alloy. There is no disclosure of forming a bearing from powder and sintering.

U.S. Pat. 5,429,876 to Yanaka et al discloses a similar alloy composition, but includes 15 to 30 % lead (Pb). See Abstract.

U.S. Pat. 5,637,132 to Matthews et al discloses a similar alloy composition, having the same concentrations of Sn, Bi, and Cu, in ranges of Applicant, but there is no disclosure of phosphorus.

U.S. Pat. 6,025,081 to Ohshiro et al discloses a similar alloy composition, but includes an amount of silver (Ag), which Applicant does not require. See Abstract.

U.S. Pat. 6,602,615 to Saitou et al (DAIDO METAL CO) discloses the same alloy composition as claimed by Applicant. See Col. 1, lines 50-53 (Sn, Bi, and Cu concentrations) & Col. 2, line 46 (P concentration). However, due to a later effective filing date the reference does not constitute prior art. See also U.S. Pat. 6,767,648.

JP 57-070246 to HITACHI discloses an alloy composition having 9-15 % Sn, 0.05 to 1 % P, 0.11 – 20 % Pb, 0.1 to 2 % Ti, 1 - 10 % graphite, and balance Cu. See Abstract. There is no disclosure of including Bismuth (Bi).

JP 57-073147 to HITACHI discloses a phosphor bronze alloy consists of, by wt. 9.0 to 15.0 % tin (Sn), 0.1 to 20.0 % bismuth (Bi), 0.05 to 1.0 % phosphorus (P), 0.1 to 2.0 % titanium (Ti), 1.0 to 10.0 % graphite (C), balance copper (Cu). See Abstract. The alloy includes titanium and graphite, which Applicant does not require.

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JP 2000-336442 to JOETSU MATERIAL discloses a similar alloy composition, but only includes 2-3 % tin (Sn). See Abstract.

GB 2355016, discloses a similar invention, but includes hard particles.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B. Compton whose telephone number is (703) 305-0240. The examiner can normally be reached on M-F, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter B. Vo can be reached on (703) 308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Eric Compton
Patent Examiner